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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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McDermott Will & Emery
600 13th Street NW
Washington, DC 20005-3096

EXAMINER

LEY, FRANCISCO M

ART UNIT	PAPER NUMBER
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3709

MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/509,748

Applicant(s)

IDE ET AL.

Examiner

Francisco M. Ley

Art Unit

3709

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/27/2006 and 9/30/2004.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "4" and "5" have both been used in Figures 1 and 5 to designate the same element. The specification identifies reference character "4" as the cylinder block and reference character "5" as the cylinder. However, in the drawings they appear to be pointing to the same element. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites, *"the suction muffler is provided with an opening formed in the hermetic container, and the resonance frequency of the opening is nearly coincident with the resonance frequency of a resonance muffler configured by the resonance chamber and the ring-like seat..."*. It is unclear what is meant by "nearly coincident", as this does not clearly specify a range that the resonance frequencies must fall within for the suction muffler opening and the resonance muffler. Therefore, any number of frequencies could be said to be nearly coincident.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (U.S. Patent 5,733,106) in view of Outzen (U.S. Patent 4,759,693).

Claim 1: Lee discloses in Figure 4 a hermetic type compressor 50 having a hermetic container that accommodates stored oil, an electric motor unit 51, and a compressing unit. The compressing unit includes a cylinder 60 for storing a reciprocally moving piston 55, a plate 56 disposed at an end of the cylinder, a suction muffler 10 having a connection pipe 16 (Figure 5) communicated to a suction hole 561 (Figure 6) in the plate 56, and a cylinder head 30 disposed at the anti-cylinder side of the plate 56.

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The cylinder head 30 is formed with a discharge chamber 33 and a resonance chamber 31(Figure 6) that accommodates a suction chamber 23, which communicates one side opened connection pipe 16. A flange 22 is disposed at an outer periphery of the connection pipe 16. Lee does not disclose that the cylinder head is provided with a groove at a position corresponding to the flange. However, Outzen does disclose the use of flanges and corresponding grooves for providing a seal in a suction muffler. Outzen discloses in Figures 1 and 2 a suction muffler 7 for a hermetic compressor, where the suction muffler has several flanges 17, 18, 22 and corresponding grooves 19, 20, and 23 that together form a seal.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the suction muffler disclosed by Lee to include a groove corresponding to a flange as disclosed by Outzen. The flange in conjunction with a groove *"forms a kind of labyrinth seal so that a leakage flow is practically suppressed"* (See Outzen Column 2, Lines 2-4). Therefore, it would have been obvious to include a flange and groove in order to provide a seal against leakage.

Claims 2 and 3: Lee discloses a generally U-shaped flange 22 having upper and lower surfaces and an outer periphery.

Claim 6: Lee shows in Figure 6 a resonance chamber 31 is nearly semi-circular in shape and arcuately extended to the discharge chamber 33. The resonance chamber 31 is not a semi-circle, but clearly may be seen as "nearly semi-circular".

Claim 7: Lee discloses in Figures 6 and 8 that the connection pipe of the suction muffler is provided with a ring-like seat (shown as 23 in Figure 6) formed so as to be

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disposed along an inner wall of the resonance chamber 31. The seat is not circular, but may be seen as "ring-like" as is the case with many types of enclosed areas.

Claim 8: Lee and Outzen do not specifically disclose that the resonance frequency of the suction muffler opening is nearly coincident with the resonance frequency of a resonance muffler. However, it would have been obvious at the time the invention was made to disclose in either Lee or Outzen that the resonance frequencies are the same for the suction muffler opening and the resonance muffler. If tuning the resonance frequencies of the mufflers to be the same is desirable for noise reduction than this would be an obvious addition particularly to Outzen, who discloses a suction sound damper designed to eliminate resonance oscillations altogether. Outzen states, *"It is particularly favourable for the shells to be substantially rectangular...Such a suction sound damper can be accommodated in the capsule to save space and has an extraordinary strength which ensures that resonance oscillations of the housing do not occur at all or lie above the hearing threshold"* (Column 2, Lines 67-68; Column 3, Lines 1-6). Therefore, it would be obvious to tune the muffler in order to eliminate resonance altogether or minimize the noise resulting therefrom.

Claim 9: Lee and Outzen do not disclose that the resonance frequency of a plane portion of the hermetic container and the resonance frequency of the opening of the suction muffler are independent of each other. However, it would be obvious to make the resonance frequency of the housing different from that of the suction muffler in order not to amplify the noise created by one or the other. This is evidenced by Alfano et al. (U.S. Patent 5,487,648) who states, *"In the hermetic motor compressors for*

home refrigerators, beside the efficiency, a very important issue is the noise produced by the motor compressor and transmitted outside by the shell. It is known that for reducing the noise it is necessary to shape the shell in such a way that its resonance frequency is different from the frequency of the motor compressor." Therefore, since the suction muffler together with the motor may form the "motor compressor", Alfano et al. makes it obvious to vary the frequencies of the hermetic container and the suction muffler.

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (U.S. Patent 5,733,106) in view of Outzen (U.S. Patent 4,759,693) and further in view of Fenocchi et al. (U.S. Patent 6,464,480; hereinafter referred to as Fenocchi).

Claims 4, 5: Lee and Outzen do not disclose an oil hole disposed at the bottom of the suction muffler for allowing oil to lubricate the seal portion. However, Fenocchi discloses in Figure 3 a compressor having an oil spout 34 that redirects a portion of oil entering an oil return passage 38 to supply lubrication between an outer seal 44 and a coupling 46.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lee and Outzen to include a hole in a suction muffler for redirecting oil to a seal similarly to the oil spout disclosed by Fenocchi. This would provide enhanced seal reliability, which is disclosed by Fenocchi who states, "*The oil spout provides a continual flow of lubrication to the outer seal and the coupling, preventing excessive wear of the outer seal and improving seal reliability*" (Column 1, Lines 54-56).

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Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,762,478 discloses a resonance chamber for a suction muffler of a hermetic compressor. The resonance chamber includes a groove for accommodating a suction chamber attached to a U-shaped flange.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Francisco M. Ley whose telephone number is (571) 270-1299. The examiner can normally be reached on Monday-Friday, 8:30am-6:00pm, Alt Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jackson can be reached at (571) 272-4697. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call (800) 786-9199 (IN USA OR CANADA) or (571) 272-1000.

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GARY JACKSON
SUPERVISORY PATENT EXAMINER

